

WE CLAIM:

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1. A variant of a polypeptide of interest comprising a T-cell epitope, wherein said variant differs from said polypeptide of interest by having an altered T-cell epitope such that said variant and said polypeptide produce different immunogenic responses in an individual.
2. The variant of claim 1 wherein said immunogenic response produced by said variant is less than said immunogenic response produced by said polypeptide of interest.
3. The variant of claim 1 wherein said immunogenic response produced by said variant is greater than said immunogenic response produced by said polypeptide of interest.
4. The variant of claim 1 wherein said polypeptide of interest is selected from the group consisting of enzymes, hormones, factors, vaccines and cytokines.
5. The variant of claim 1 wherein said polypeptide of interest is not recognized by said individual as endogenous to said individual.
6. The variant of claim 1 wherein said polypeptide of interest is an enzyme selected from the group consisting of lipase, cellulase, endo-glucosidase H, protease, carbohydrases, reductase, oxidase, isomerase, transferase, kinase and phosphatase.
7. The variant of claim 1 wherein said T-cell epitope is altered with amino acid substitutions.
8. The variant of claim 1 wherein said T-cell epitope is altered by having a terminal portion of said polypeptide of interest comprising said T-cell epitope replaced with a corresponding terminal portion of a homolog of said polypeptide of interest wherein said homolog does not comprise a T-cell cell epitope identical to said replaced T-cell epitope.
9. The variant of claim 8 wherein said variant comprises at least one less T-cell epitope than said polypeptide of interest and said homolog combined.
10. The variant of claim 8 wherein said variant comprises at least two less T-cell epitopes than said polypeptide of interest and said homolog combined.
11. A nucleic acid encoding the variant of claim 1.
12. An expression vector comprising the nucleic acid of claim 11.
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13. A host cell transformed with the expression vector of claim 12.

14. A cleaning composition, an animal feed composition, or a composition for treating a textile comprising the variant of claim 6.

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15. The variant of claim 1 further comprising a pharmaceutically acceptable carrier.

16. A cleaning composition, an animal feed composition, or a composition for treating a textile comprising a naturally occurring enzyme producing a reduced immunogenic response in comparison to another enzyme of the same type.

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17. The composition of claim 16 wherein said type is a protease.

18. The composition of claim 16 wherein said enzyme is proteinase K.

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19. A method for determining the immunogenic response produced by a protein, comprising:

(a) obtaining from a single blood source a solution of dendritic cells and a solution of naïve CD4+ and/or CD8+ T-cells;

(b) promoting differentiation in said solution of dendritic cells;

(c) combining said solution of differentiated dendritic cells and said naïve CD4+ and/or CD8+ T-cells with said protein; and

(d) measuring the proliferation of T-cells in said step (c).

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20. The method of claim 19 further comprising comparing said immunogenic response to another protein.

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21. The method of claim 20 wherein said protein and said another protein are homologs of one another.

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22. The method of claim 20 wherein said protein and said another protein are each proteases.

23. The method of claim 20 wherein said protein and said another protein are each different peptides of the same protein.

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24. A method of altering the immunogenicity of a polypeptide of interest comprising:

a) determining the immunogenicity of said polypeptide;

b) identifying a T-cell epitope in a said polypeptide; and

c) altering said T-cell epitope so as to alter the immunogenicity of said polypeptide.

25. The method of claim 24 wherein said T-cell epitope is altered by having at least one amino acid substitution.

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26. The method of claim 25 wherein said amino acid substitution is made by altering a nucleic acid encoding for said T-cell epitope.

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27. The method of claim 24 wherein said T-cell epitope is altered by replacing a portion of said polypeptide of interest comprising said T-cell epitope with a corresponding portion of a homolog of said polypeptide of interest, where said corresponding portion does not contain said T-cell epitope.

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28. The method of claim 27 wherein said portion is a terminal portion of said polypeptide of interest.

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